## **REMARKS**

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

In the specification, paragraphs have been amended on pages 7, 8, 9 and 11.

Claims 1, 11, 16, 21 and 22 are requested to be cancelled without disclaimer or prejudice.

Claims 2, 5, 8, 12, 17, 18 and 24 are currently being amended.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 2-10, 12-15, 17-20 and 23-25 are now pending in this application.

The Examiner has requested that the specification be reviewed for minor errors. In particular, the Examiner stated that the term "cyclically" is misspelled on page 20, line 24 and on page 28, line 26. In addition, the Examiner stated that the term "zero-crossing" appears in the specification with a hyphen at times and without a hyphen at other times. The Examiner requested correction of that term for consistency.

In response, Applicant respectfully submits that the spelling of the term "cyclicly" is a correct, alternative spelling, as set forth in the Webster's Ninth New Collegiate Dictionary (a copy of the relevant page for which is attached). Accordingly, Applicant has not changed the spelling of that term. With respect to the term "zero-crossing," Applicant has reviewed the patent specification and has added hyphens to instances in which the terms were not hyphenated.

The Examiner has stated that the title of the invention is not descriptive and has requested a new title. The Examiner suggested the title "A Plural Method And System For Waveform Compression And Expansion."

In response, Applicant appreciates the Examiner's suggestion of a new title. However, it

is believed that title proposed by the Examiner may be somewhat confusing in that the term "plural" appears to be modifying the terms method and system (i.e., "a plural method and system"). Instead, applicant proposes to amend the title to read as follows: "Method and System For Waveform Compression And Expansion With Time Axis."

Claims 2, 8, 18 and 24 are objected to as containing certain informalities noted by the Examiner. In response, claims 2, 8, 18 and 24 are amended. In particular, the term "approximately" in claims 2 and 18 is changed herein to the phrase "at least." Also, the term "low" has been removed from claim 24. In addition, the term "third" in the phrase "third format" in claims 8 and 18 has been removed. In view of those claim amendments, it is requested that the objection to claims 2, 8, 18 and 24 be withdrawn.

Claims 1, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (USP 6,169,240 B1) in view of Suzuki (USP 5,566,154) and further in view of Kageyama et al. (USP 5,412,152 A). In view of the cancellation of claims 1, 21 and 22, without prejudice or disclaimer, the rejection of those claims is moot.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (USP 6,169,240 B1) in view of Suzuki (USP 5,566,154) and further in view of Kageyama et al. (USP 5,412,152 A) and further in view of Chiba (USP 5,675,709) and yet further in view of Suzuki (USP 4,679,480). This rejection is respectfully traversed, because claim 8 (and, thus, dependent claims 9 and 10) include features that are neither described nor suggested by the prior art of record.

Claim 8 is directed to a method for generating a compressed and expanded waveform, and includes a step of "receiving a plurality of mark addresses that designate a starting point at zero-crossings of waveform segments of the frequency band-divided waveform" as part of a step of generating at least one processed waveform from each frequency band-divided waveform. The claim further includes a step of "reading out portions of at least one waveform segment ..., the portions of at least one waveform segment comprising waveform data starting at the mark address ..." (i.e., starting at the zero-crossing). Thus, in claim 8, compression and expansion is accomplished with a grain beginning with a zero cross with each frequency band-divided

waveform. None of the cited prior art references teaches or suggests such features.

While the Examiner has acknowledged that the Suzuki '240 patent is "silent on the issue of zero-crossing parameters," the Examiner cited the Chiba patent and stated that Chiba "reads on the feature of mark addresses that designate a starting point at zero-crossings of waveform segments" (citing column 15, lines 4-18 and Fig. 13, item 111 of the Chiba patent). This characterization of the Chiba patent is respectfully traversed. At most, Chiba describes a system in which the <u>number</u> of zero-crossings in a data segment is counted. The <u>number</u> of zero-crossings (referred to by Chiba as the number "zc") is used by Chiba to determine if the data segment is one of no sound. If the data segment is determined to be a "no sound" segment, then further analysis of the segment is not carried out.

"It is known that in the voice of a human being, the sound part occupies substantially the half of the voice. When examining the data segment of no sound, the number zc of zero-crossings for the segments of no sound is extremely small. Therefore, the number zc of zero-crossings is used for the feature quantity (A) ... and the first decision portion 224 determines that the data segment where the number zc of zero-crossings is smaller than a predetermined value Tz is the data segment of no sound. The voice data of the no sound data segment is not analyzed by the next and subsequent analysis executing portions."

(Column 11, lines 16-27 of the Chiba patent.)

Thus, Chiba counts the <u>number</u> of zero-crossings and uses that number zc to determine if a data section is one that contains sound or not. Chiba does not <u>receive mark addresses</u> <u>designating starting points of zero-crossing</u>, as claimed. Chiba also does not <u>read out</u> portions of a waveform segment that comprise waveform data <u>starting at a zero-crossing</u> mark address.

While the Examiner cited column 15, lines 4-18 of the Chiba patent as reading on the feature of mark addresses that designate a starting point at zero-crossings of the waveform section, the cited portion of the Chiba patent only reiterates that Chiba calculates a <u>number</u> zc of zero-crossings and uses that number in an analysis. In particular, the cited portion of the Chiba patent explains that Chiba employs the <u>number</u> of zero-crossings zc as an indication of the frequency of the sound signal and as a parameter for indicating the center value of the frequency. However, Chiba does not receive mark addresses for such zero-crossings and does not read out

portions of a waveform, starting at a mark address.

Accordingly, even if combined with the Suzuki patents, as suggested by the Examiner, the combination would not result in the invention recited in claim 8. The rejection of claim 8 is, therefore, respectfully traversed. At least due to their dependency on claim 8, claims 9 and 10 are also patentably distinguished over the prior art of record.

Claims 11 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (USP 6,169,240 B1) in view of Suzuki (USP 5,566,154) and further in view of Kageyama et al. (USP 5,412,152 A). In view of the cancellation of claims 1, 21 and 22, without prejudice or disclaimer, the rejection of those claims is moot.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (USP 6,169,240 B1) in view of Suzuki (USP 5,566,154) and further in view of Kageyama et al. (USP 5,412,152 A) and yet further in view of Suzuki (USP 5,347,478). This rejection is respectfully traversed, because claim 17 includes features that are neither described nor suggested by the prior art of record.

Claim 17 is directed to a method for generating a compressed and expanded waveform, and includes a step of "filtering at least one of the plurality of processed waveforms generated from the plurality of frequency band-divided waveforms according to a frequency band of the frequency band-divided waveform associated with each processed waveform" as part of a step of superimposing a plurality of processed waveforms. None of the cited prior art references teaches or suggests such features. Accordingly, the combination of prior art references suggested by the Examiner would not teach or suggest such features. The rejection of claim 17 is, therefore, respectfully traversed.

The Examiner argues that it would have been obvious to combine Suzuki '240 and Suzuki '154 to address the fact that Suzuki '240 does not mention filtering, as claimed. However, the system described in the Suzuki '240 patent is quite different (and performs a different function) than the system described in the Suzuki '154 patent. First, it should be recognized that, while the first named inventors in those two patents have the same last name ("Suzuki"), they are not the same person and the two patents are assigned to different entities.

The two patents are directed to two different systems that perform distinctly different functions. Without the present disclosure as guide, one of ordinary skill in the art would not have found it obvious to pick and choose certain process steps or elements from the Suzuki '154 system and apply them to the Suzuki '240 system, as such steps and elements would have no similar purpose in the Suzuki '240 system.

More specifically, the Suzuki '240 patent describes a tone generating device that allows the user to time stretch or compress data being read out to change the expression of the generated tone without changing the pitch. (See, e.g., the Abstract, lines 13-18 of the Suzuki '240 patent). On the other hand, the Suzuki '154 patent describes a process for compressing a digital signal to record data on an optical disc or to transmit data in compressed form. When reading out from the optical disc, the Suzuki '154 patent system simply reads and de-compresses the stored signal. Suzuki '154 provides no stretching or compressing on a time axis to change expression or any sound quality of the signal during read out, as describe by Suzuki '240. The compression used by Suzuki '154 is for storing or transmitting the data in compressed form, not for changing a sound quality of the data. Thus, any filtering performed by Suzuki '154 would not have application to the stretching or compressing data on a time axis to change or enhance the sound produced by the data. Thus, there would be no reason or motivation to employ any such filtering in the Suzuki '240 system. There would be no reason or motivation to employ certain steps performed in an optical data compression technique for optical storage or transmission as described by Suzuki '154 with the tone generating device described by Suzuki '240.

Claims 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (USP 6,169,240 B1) in view of Kageyama et al. (USP 5,412,152 A). This rejection is respectfully traversed, because each of claims 23 and 25 include features that are neither described nor suggested by the prior art of record.

In claim 23, multiple different compression and expansion formats with time axis are employed for every band of a frequency band-divided waveform. In claim 25, multiple different compression and expansion formats with time axis are employed for every section of a temporally divided waveform.

None of the cited prior art references teaches or suggests such features. Accordingly, the

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combination of prior art references suggested by the Examiner would not teach or suggest such features. The rejection of claims 23 and 25 is, therefore, respectfully traversed.

Applicant notes with appreciation the Examiner's indication that claims 2-7, 12-15, 18-20 and 24 would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims. As claims 2, 5 and 12 are amended herein to be in independent form and to include limitations of base and any intervening claims, it is respectfully submitted that those claims and their dependent claims (i.e., claims 3, 4, 6, 7 and 13-15) are in condition for allowance. Claims 18-20 remain dependent (directly or indirectly) on claim 17, which is addressed above.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-0872. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-0872. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 50-0872.

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Respectfully submitted

320 cycler • cynosure ride a cycle; specif: BICYCLE ~ vt: to cause to go through a cycle -ride a cycle; specif: BICYCLE ~ vi: to cause to go through a cycle — cy-cler \sis.k(=)|-n, 'sik(=)\ n cy-clic \sis.k(i) do sik.lik\ or cy-clic \sis.kli-kal, 'sik.li\ adj (1794)

1 a: of, relating to, or being a cycle b: moving in cycles (~ time)

2 cyclic being a mathematical prop that has an element such that every element of the group can be expressed as one of its powers — cyclically \k(s-)|\cdot \k(smonopnospate; cyclic GMP \-je \,)em 'pe\ n [guanosine + mon, + phosphate] (1972) a cyclic mononucleotide of guanosine that has been implicated with cyclic AMP as a second messenger in addition to hormones in the concyclic-i-ty \si-klis-ət-ë, sik-lis-\ n (1944): the quality or state of being cyclic (estrous ~)
cy-clist \( \frac{\sir\_1 \k(-2)}{\sir\_1 \k(-2)} \), \( n \) (1882)\( \frac{\sir\_1 \k(-2)}{\sir\_1 \k(-2)} \), \( n \) (1882)\( \frac{\sir\_1 \k(-2)}{\sir\_1 \k(-2)} \), \( n \) (cycl- + -itol \( (as in inositol) \), \( (ca. 1943)\( \frac{\sir\_1 \k(-2)}{\sir\_1 \k(-2)} \), \( \frac{\sir\_1 \k(-2)}{\sir\_1 \k(-2)} cyclic (estrous ~) cyclotaxi, fr. motocyclette motorcycle + -o + taxi] (1964): a 3-wheeled motor-driven taxi cycload-di-tion \si-(j)klo-a-dish-an\ n (1963): a chemical reaction leading to ring formation. in a compound cycloal-ip-hatic \si-klo\_al-a-flat-ik\ adj (1936): Alicyclic cyclo-di-ena\ 'di-en. -di-'n [cycl-+diene] (1942): an organic insecticide (as aldrin, dieldrin, chlordane, or endosulfan) with a chlorinated methylene group forming a bridge across a 6-membered carbon ring. cyclo-gen-e-sis \ 'jen-a-sss\ n. [cyclone + genesis] (ca. 1938): the development or, intensification of a cyclone.
cy-clo-hex-ane \ \si-klo-hek-san\ n [ISV] (ca. 1909): a pungent saturated cyclic hydrocarbon \ C\_6H\_1, found in petroleum or made synthetically and used chiefly as a solvent and in organic synthesis cyclo-hex-a-none \ 'hek-ss-\non\ n [cyclohexane + -one] (ca. 1909): a liquid ketone \ C\_4H\_0O used esp. as a solvent and in organic synthesis cyclo-hex-i-mide \ 'hek-ss-\nid\ med\ n [cyclohexane + -one] (ca. 1950): an agricultural fungicide \ (j-H\_3)NO, that inhibits protein synthesis and is obtained from a soil bacterium \ (Streptomyces griseus)\ cyclo-hex-yl-amine \ 'hek-'sil-a-men\ n \ [cyclohexane + -i-yl + amine] (1943): an amine \ (C\_4H\_1)NH) of cyclohexane that is a prob. harmful metabolic breakdown product of cyclamate \ (cycloid\ 'si-kloid\ n [F. cycloïde, fr. Gk-kykloedes circular, fr. kyklos] (1661): 1
: a curve that is generated by a point on kykloeides circular, fr. kyklos] (1661).

a curve that is generated by a point on the circumference of a circle as it rolls along a straight line .2: something having a curved or circular form (a cloud ).

- cy-cloidal \si-kioid-\frac{1}{2} \add \frac{1}{2} \quad \text{cycloid } 2 \quad \text{ scales. 2 - tetating to 0, being a personality, characterized by a laternating high and low moods.—compare CYCLOTHYMIG (1)—cyclome-ter\si-klām-pi-pi\n (1880): a device made-for recording the revolutions of a wheel and often used for registering distance traversed by a wheeled vehicle (1848) 1. a : a storm of system of winds that rotates about, a center of low atmospheric pressure clockwise in the southern hemisphere and counterclockwise in the northern, advances at a speed of 20 to 30 miles an hour, and often brings abundant rain b: TORNADO c: Low lb. (2: any of various centrifugal devices for separating materials (as solid particles from gases or liquids):—cyclon-ic \(\frac{1}{2}\)-in \(\frac{1}{2}\)-cyclon-ic \(\frac{1}{2}\)-in \(\frac{1}{2}\)-cyclon-ic \(\frac{1}{2}\)-in \(\frac{1}{2}\)-in \(\frac{1}{2}\)-cyclon-ic \(\frac{1}{2}\)-in \(\frac{1}{2}\)-cyclon-ic \(\frac{1}{2}\)-in \(\frac{1}{2}\)-cyclon-ic \(\frac{1}{2}\)-in \(\frac{1}{2}\)-in \(\frac{1}{2}\)-cyclon-ic \(\frac{1}{2}\)-in \(\frac{1}{2}\)-cyclon-ic \(\frac{1}{2}\)-in \(\frac{1}{2}\)-in \(\frac{1}{2}\)-cyclon-ic \(\frac{1}{2}\)-in \(\frac{1}{2}\)-cyclo-pe-in \(\frac{1}{2}\)-in \(\frac{1}{2}

deuterons, or ions) are propelled by an alternating electric field in constant magnetic field cy-der, Brit var of CIDER cygnet \signal\ n [ME sygnett, fr. MF cygne swan, fr. L cycrus, cygnus \signal\ n [ME sygnett, fr. MF cygne swan, fr. L cycrus, cygnus, fr. Gk kyknos] (15c): a young swan Cygnus \signal\ n and Pegasus in the Milky Way cyl-in-der \signal\ signal\ n and Pegasus in the Milky Way cyl-in-der \signal\ signal\ n and pegasus in the Milky Way cyl-in-der \signal\ signal\ n and pegasus in the Milky Way cyl-in-der \signal\ signal\ n and pegasus in the Milky Way cyl-in-der \signal\ signal\ signal\ n and \ n an \drik(a-)le\(\frac{a}{a}\) cylindrical coordinate n (ca. 1934): any of the coordinates in space obtained by constructing in a plane a polar coordinate system and only line perpendicular to the plane a linear coordinate system (2.7ma\) si-ma\) n [Gk kyma. lit., wave] [1563] 1: a projecting molding whose profile is a double curve 2: a double curve formed by the union of a concave line and a convex line cy-ma-tium \si-\ma-sh(\varepsilon-)\si\) [L, fr. Gk kymalion, dim of kymat-kyma] (1563): a crowning molding in classic architecture ear: CYMA dim of kymat- kyma] (1563): a crowning molding in classic architecture; esp: CYMA cymbal (1563): a crowning molding in classic architecture; esp: CYMA cymbal (1504): a concave brass plate that produces a brilliant clashing tone and that is struck with a drumstick or is used in pairs struck glancingly together — cymbal-ist \-ba-lost \n (NL, genus name, fr. L cymba boat, fr. Gk kymbē] (1815): any of a genus (Cymbidium) of tropical Old Worlds orchids with showy boat-shaped flowers cyme \(\frac{1}{3}\text{m} \sqrt{n} \) in (NL, cyma, fr. L, cabbage sprout, fr. Gk kyma swell wave, cabbage sprout, fr. kyein to be pregnant — more at CAVE] (1794): an inflorescence in which all floral axes terminate in a single flowers exp: a determinate inflorescence of this type containing several flowers with the first-opening central flower terminating the main axis and subsequent flowers developing from lateral buds — see INFLORESCENCE illustrated illustrated cy-mene \si-men\ n [F cymène, fr. Gk kyminon cumin + F-ène-ene \frac{1}{100} cy-mene \si-men\ n [F cymène, fr. Gk kyminon cumin + F-ène-ene \frac{1}{100} cy-mene \si-men at cumin] (ca. 1863): any of three liquid isomeric hydrocarbons Colling application of the cymening \si-men \si-WEISH

'Qymric n (ca. 1890): BRYTHONIC: specif: the Welsh language

'Qymry \r\elline{c} \ n p \rectif{ W} \rightarrow \rightar ly \-k(-)|k\ adv syn CYNICAL MISANTHROPIC. PESSIMISTIC. MISOGYNISTIC mean deeply distrustful. CYNICAL implies having a sneering disbelief in sincerity of integrity, MISANTHROPIC suggests a rooted distrust and dislike of him man beings and their society; PESSIMISTIC implies having a gloomy, distrustful view of life; MISOGYNISTIC applies to a man having a deep seated distrust of and aversion to women.

cyni-cism \sin--, siz-am\ n (1672) 1 cap: the doctrine of the Cynical cap: a cynical character, attitude, or quality b: an expression of such quality quanty cynomoleus monkey \si-no-,mäl-o-gos-\ n [NL, alter. of cynamolgus fr. L. member of an ancient tribe in Africa, fr. Gk Kynamolgoi, lit., dog milkers] (1936): a macaque (Macaca irus syn. M. cynomolgus) of southeastern Asia, Borneo, and the Philippines that is used esp. in medical research fr. L cynosura Ursa Minor, fr. Gk kynosoura, fr. kynos oura, li... dogstail] 1 cap: the northern constellation Ursa Minor, also: NORTH STAR.

cy-clo-style \\_stil\ n [fr. Cyclostyle, a trademark] (1883); a machine for making multiple copies that utilizes a stencil cut by a graver whose lift is a small rowel — cyclostyle w cy-clo-thy-mic \\_si-kla-'thi-mik\ adj [NL cyclothy-mia (fr. G zyklothy-mic \\_si-kla-'thi-mik\ adj [NL cyclothy-mia (fr. G zyklothy-mia \\_fr. zykl-cycl-+-thy-mia-+thy-mia) + E -ic] (1923): relating to or being an affective disorder characterized by the alternation of depressed moods with elevated, expansive, or irritable moods without psycholic features — compare Cyclotol 2 — cy-clo-thy-mia \\_thi-me-\\_n n \\_scale \\_scale \\_scale \\_scale \\_scale \\_scale \\_n \\_scale \\_scale \\_scale \\_scale \\_n \\_scale \\_scale \\_scale \\_n \\_scale \\_scale \\_scale \\_n \\_scale \\_scale \\_n \\_scale \\_scale \\_scale \\_n \\_scale \\_scale \\_n \\_scale \\_scale \\_n \\_scale \\_n \\_scale \\_scale \\_n \\_sca